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What is claimed is:

1. A molecular marker that distinguishes a *Frk2* gene originating from *Lycopersicon esculentum* as opposed to a *Frk2* gene originating from a wild *Lycopersicon* species, said marker being a marker for increased fructose/glucose ratio in tomato fruit as compared to a ratio generally present in standard tomato cultivars.
 2. A molecular marker for a gene linked to *Frk2* having a wild-species derived allele, whose wild species-derived allele increases fructose to glucose ratio in mature tomato fruit as compared to a ratio generally present in standard tomato cultivars.
 3. A molecular marker according to claim 2 wherein said marker is part of the *Frk2* gene.
 4. A molecular marker that, upon interaction with another marker that tags a *Fgr* locus located on tomato chromosome number 4, is a marker for increased fructose/glucose ratio in tomato fruit as compared to a ratio generally present in standard tomato cultivars.
 5. A molecular marker according to claim 1 that distinguishes a *Frk2* gene originating from *Lycopersicon esculentum* as opposed to a *Frk2* gene originating from *Lycopersicon hirsutum*.
 6. A marker according to claim 1 and further comprising an amplification product generated by primers called F2F and F2R that are further digested with *EcoR* I endonuclease, comprising a nucleotide sequence:

F2F= CGCCCGCTGAGTTGAATCTTGATCTT, and

20 F2R= CACAAGGACATGGCGGATTCCATCATC.

7. A marker according to claim 6 and further comprising a fragment having a nucleotide sequence as follows:

1 CATGGCAGTT AACGGTGCTT CTTCCCTCTGG TTTGATCGTC AGTTTCGGTG AGATGTTGAT

25 61 CGATTTCGTT CCGACAGTCT CCGGCCTATC CCTTGCCGAG GCTCCGGAT TTTTGAAAGC

121 TCCCGGCGGT GCACCGGCGA ACGTCGCTAT CGCGGTGACG AGGCTCGGAG GGAGGGTCGGC

181 GTTCGTCGGG AAAACTCGGCG ACGATGAGTT CGGTACACATG CTCGCCGGGA TTCTGAAAAC

311-GAAGCCGCTA-GAACGGCATG-GAAATGAAATT-TGACAAGGGC-GCCAGGAGGG-CTTTGGCGT-

GGG GGTCA GCTTA CGCCCGGAGG CAG ACGCTGA CCTTTA TGTCTT TACG TGA ATG CGA CTGCGGCA

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421CTATGGATCAATTAGCTTCACTTGCGACCCAGTCAGACGCACTCCTAATCTTAATGCCA

481 AGTAGCTAAG GAGGCAGGGG CATTGCTCTT TTATGACCC TAACTTCGGT TGGCGGTGCG

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541 GCCTTCAGCA GAAGAAGCCA AGAACAAAT CAAGAGCATA TGGGACTCTG CTGATGTGAT
601 CAAGGTCAGC GATGTGGAGC TCGAATTCT CACTGGAAGC ACAAGATTG ATGATGAATC
5 661 CGCCATGTCC TTGTGGCATC CTAACCTGAA GCTACTCTT GTCACTCTT GTGAAAAGGG
721 TTGCAATTAC TACACCAAGA AATTCCATGG AACCGTTGGA GGATTCCATG TGAAGACTGT
781 TGACACCACT GGAGCTGGTG ATTCTTTGT TGGTGCCCTT CTAACCAAGA TTGTTGATGA
10 841 TCAAACCATT CTCGACGATG AAGCAAGGTT GAAGGAAGTA CTTAGGTTT CATGTGCATG
901 TGGAGCCATC ACTACAACCA AGAAAGGAGC AATCCCAGCT TTGCCTACTG CATCTGAAGC
15 961 CCTCACITTG CTCAAGGGAG GAGCATAGAA ACATCATGIT ATCTTTTTC TTTTTCCAT
1021 CTTCATATAT TTCCCCCCT TTATGAGTTT TTTTTAACTT TGAAGCTAGT AGGAAGCCTT

8. A marker according to claim 6 and further comprising a fragment having an amino acid
20 sequence as follows:

MAVNGASSSGLIVSFGEMLIDFVPTVSGVSLAEAPGFLKAPGGAPANVAIAVTRLGG
RSAFVGKLGDEFGHMLAGILKTNGVQADGINFDKGARTALAFVTLRADGEREFMF
YRNPSADMLLTPAELNLDLIRSAKVFHYGSISLIVEPCRAAHMKAMEVAKEAGALLS
25 YDPNLRLPLWPSAEEAKKQIKSIWDSADVIKVSDVELEFLTGSNKIDDESAMSLWHP
NLKLLLVTLGEKGNCYYTKKFHGTVGFFHVKTVDTTGAGDSFVGALLTKIVDDQTI
LDDEARLKEVLRFSCACGAIKKGAIPALPTASEALTLLKGGA

9. A method for breeding tomato plants that produce tomatoes having superior taste
30 characteristics, comprising the steps of:

crossing at least one *Lycopersicon esculentum* plant with a *Lycopersicon* spp. to produce
hybrid seeds;
collecting the hybrid (F_1) seeds;
growing plants from the F_1 seeds;
35 pollinating the F_1 plants;
collecting the hybrid seeds produced by the F_1 plants;
growing plants from the seeds produced by the F_1 plants;
measuring glucose and fructose content of ripe fruit produced from the plants grown from

the seeds of the F₁ plants;

providing a marker that distinguishes a *Frk2* gene originating from *Lycopersicon esculentum* as opposed to a *Frk2* gene originating from a wild *Lycopersicon* species, said marker being a marker for increased fructose/glucose ratio in tomato fruit; and

5 using said at least one additional marker to select a tomato plant with tomato fruit having desired characteristics including a fructose to glucose ratio greater than a ratio of standard *Lycopersicon esculentum*.

10. A method for finding a gene that produce tomatoes having superior taste characteristics, comprising the steps of:

10 providing a marker that distinguishes a *Frk2* gene originating from *Lycopersicon esculentum* as opposed to a *Frk2* gene originating from a wild *Lycopersicon* species, said marker being a marker for increased fructose/glucose ratio in tomato fruit; and

using said at least one additional marker to find said gene.

11. A method for finding a promoter region of a gene that produce tomatoes having superior taste characteristics, comprising the steps of:

15 providing a marker that distinguishes a *Frk2* gene originating from *Lycopersicon esculentum* as opposed to a *Frk2* gene originating from a wild *Lycopersicon* species, said marker being a marker for increased fructose/glucose ratio in tomato fruit; and

using said at least one additional marker to find a promoter region of said gene.

20 12. A method according to claim 10 and further comprising cloning said gene.

13. A method according to claims 9 and additionally comprising the step of propagating said plants with tomato fruits having the desired characteristics.

14. A method according to claim 13 wherein the step of propagating includes the step of vegetative propagation.

25 15. A method according to claim 13 wherein the step of propagating includes the step of propagation by seed.

16. A tomato plant produced according to the method of claim 9.

17. A tomato fruit produced by a tomato plant in accordance with claim 16.

18. A tomato seed which when grown yield a tomato plant in accordance with claim 16.